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**PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes stone countertops.
- B. Related Requirements:
  - 1. Division 1 Section "Sustainable Design Requirements".
  - 2. Division 4 Section "Exterior Stone Cladding".

**1.3 QUALITY ASSURANCE**

- A. The work of this section shall be performed by a company which specializes in the type of stone countertops work required for this Project, with a minimum of 5 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
  - 1. Work shall be performed in compliance with Owner's insurance underwriters' requirements and UL approvals and testing for materials, assemblies and procedures.
- B. Manufacturer shall specialize in manufacturing the type of stone countertops specified in this section, with a minimum of 5 years of documented successful experience, and have the facilities capable of meeting all requirements of Contract Documents as a single-source responsibility and warranty.
- C. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate stone countertops similar to that required for this Project, and whose products have a record of successful in-service performance.
- D. Installer Qualifications: Fabricator of stone countertops.
- E. Mockup: Build mockup to demonstrate aesthetic effects and to set quality standards for fabrication and execution.
  - 1. Build mockup of typical countertop as shown on Drawings. See Division 9 Section "Mockup Rooms".
  - 2. Subject to compliance with requirements, approved mockup may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Manufacturer's identification tags or marks are not acceptable on surfaces which will remain exposed to view after installation.
  - 1. Evidence of "patching" after removal of tags or marks is not acceptable.

**1.4 SUBMITTALS**

- A. Submit the following according to Conditions of the Construction Contract and Division 1 Specification Sections.
- B. Product Data: For each variety of stone, stone accessory, and manufactured product.
- C. LEED Submittals:
  - 1. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.
  - 2. Product Data for Credit IEQ 4.1: For adhesives and sealants, documentation including printed statement of VOC content.
- D. Shop Drawings: Include plans, sections, details, and attachments to other work.
  - 1. Show locations and details of joints.
  - 2. Show direction of veining, grain, or other directional pattern.

## E. Samples:

Items No.	Quality	Size	Description
S1	5	12"X12	Each stone in selected color and finish.
S2	5	Manufacturer's Standard	Full range of available sealant colors.

F. Hazardous Materials Notification: In the event no product or material is available that does not contain asbestos, PCB or other hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

G. Asbestos and PCB Certification: After completion of installation, but prior to Substantial Completion, Contractor shall certify in writing that products and materials installed, and processes used, do not contain asbestos or polychlorinated biphenyls (PCB), using format in Article 3 of General Conditions".

**1.5 INFORMATIONAL SUBMITTALS**

A. Qualification Data: For fabricator.

B. Material Test Reports:

1. Stone Test Reports: For each stone variety proposed for use on Project, by a qualified testing agency, indicating compliance with required physical properties, according to referenced ASTM standards. Base reports on testing done within previous three years.
2. Sealant Compatibility and Adhesion Test Report: From sealant manufacturer indicating that sealants will not stain or damage stone.

**1.6 CLOSEOUT SUBMITTALS**

A. Maintenance Data: For stone countertops to include in maintenance manuals. Include product data for stone-care products used or recommended by Installer, and names, addresses, and telephone numbers of local sources for products.

**1.7 DELIVERY, STORAGE, AND HANDLING**

A. Comply with General Conditions and Division 1 Section "Product Requirements".

B. Store and handle stone and related materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, and other causes.

1. Lift stone with wide-belt slings; do not use wire rope or ropes that might cause staining. Move stone, if required, using dollies with cushioned wood supports.
2. Store stone on wood A-frames or pallets with nonstaining, waterproof covers. Arrange to distribute weight evenly and to prevent damage to stone. Ventilate under covers to prevent condensation.

**1.8 FIELD CONDITIONS**

A. Field Measurements: Verify dimensions of construction to receive stone countertops by field measurements before fabrication and indicate measurements on Shop Drawings.

**1.9 WARRANTY**

A. Comply with General Conditions and Division 1 Section "Product Requirements".

**1.10 PRECONSTRUCTION TESTING**

A. Preconstruction Sealant Adhesion and Compatibility Testing: Submit to joint-sealant manufacturers, for compatibility and adhesion testing according to sealant manufacturer's standard testing methods and Division 7 Section "Joint Sealants," Samples of materials that will contact or affect joint sealants.

**PART 2 PRODUCTS****2.1 UNAUTHORIZED MATERIALS**

A. Materials and products required for work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the Owner.

**2.2 ACCEPTABLE MANUFACTURERS**

- A. Products of the manufacturers specified in this section establish the minimum functional, aesthetic and quality standards required for work of this section.
- B. Source Limitations for Stone: Obtain each variety of stone, regardless of finish, from a single quarry whether specified in this Section or in another Section of the Specifications, with resources to provide materials of consistent quality in appearance and physical properties.
  - 1. For stone types that include same list of varieties and sources, provide same variety from same source for each.
  - 2. Make stone slabs available for examination by Architect.
    - a. Architect will select aesthetically acceptable slabs and will indicate aesthetically unacceptable portions of slabs.
    - b. Segregate slabs selected for use on Project and mark backs indicating approval.
    - c. Set up a number of large uncut finished slabs of each type sufficient to demonstrate the extreme range, extent of veining, inclusions, knots, swirls, etc. that can be expected for the production run material in a vertical position in the fabricator's yard for viewing by the Architect and Owner.
    - d. Mark and photograph aesthetically unacceptable portions of slabs as directed by Architect.
- C. Regional Content: For material that is extracted, harvested or recovered as well as manufactured within 500 miles of the project site – 101 First Street, San Francisco, CA, contractor shall document the cost and percentage (by weight) of each material that is regional.
- D. Substitutions: Comply with General Conditions using form in Division 1 Section "Substitution Request Form".

**2.3 MARBLE**

- A. Material Standard: Comply with ASTM C503.
  - 1. Stone Abrasion Resistance: Minimum value of 10. based on testing according to ASTM C241/C 241M or ASTM C1353.
- B. Varieties and Sources: Subject to compliance with requirements, provide the following:
  - 1. Calacatta White.
- C. Cut stone from contiguous, matched slabs in which natural markings occur.
- D. Finish: Honed.
- E. Match Architect's samples for color, finish, and other stone characteristics relating to aesthetic effects.
- F. Drawing Designation: Stone Type ST-4.

**2.4 ADHESIVES, GROUT, SEALANTS, AND STONE ACCESSORIES**

- A. General: Use only adhesives formulated for stone and ceramic tile and that are recommended by their manufacturer for the application indicated.
- B. Water-Cleanable Epoxy Adhesive: ANSI A118.3, with a VOC content of 65 g/L or less.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Bonsal, W.R. Company.
    - b. Bonstone Materials Corporation.
    - c. C-Cure.
    - d. Custom Building Products.
    - e. Laticrete International, Inc.
    - f. MAPEI Corporation.
    - g. Summitville Tiles, Inc.
- C. Sealant for Countertops: Manufacturer's standard sealant of characteristics indicated below that complies with applicable requirements in Division 7 Section "Joint Sealants" and will not stain the stone it is applied to.

- D. Stone Cleaner: Specifically formulated for stone types, finishes, and applications indicated, as recommended by stone producer and by sealer manufacturer. Do not use cleaning compounds containing acids, caustics, harsh fillers, or abrasives.
  - 1. Cleaner: Miracle Sealants Co. "Miraclean #1."
- E. Stone Sealer: Colorless, stain-resistant sealer that does not affect color or physical properties of stone surfaces, as recommended by stone producer for application indicated.
  - 1. Sealer for Lavatory Countertop: Miracle Sealant Co. "Miraseal #102."

## 2.5 STONE FABRICATION, GENERAL

- A. Select stone for intended use to prevent fabricated units from containing cracks, seams, and starts that could impair structural integrity or function.
  - 1. Repairs that are characteristic of the varieties specified are acceptable provided they do not impair structural integrity or function and are not aesthetically displeasing, as judged by Architect.
- B. Grade and mark stone for final locations to produce assembled countertop units with an overall uniform appearance.
- C. Fabricate stone countertops in sizes and shapes required to comply with requirements indicated.
  - 1. For granite, comply with recommendations in NBGQA's "Specifications for Architectural Granite."
  - 2. Clean sawed backs of stones to remove rust stains and iron particles.
  - 3. Dress joints straight and at right angle to face unless otherwise indicated.
  - 4. Cut and drill sinkages and holes in stone for anchors, supports, and attachments.
  - 5. Provide openings, reveals, and similar features as needed to accommodate adjacent work.
  - 6. Fabricate molded edges with machines having abrasive shaping wheels made to reverse contour of edge profile to produce uniform shape throughout entire length of edge and with precisely formed arris slightly eased to prevent snipping, and matched at joints between units. Form corners of molded edges as indicated with outside corners slightly eased unless otherwise indicated.
  - 7. Finish exposed faces of stone to comply with requirements indicated for finish of each stone type required and to match approved Samples and mockups. Provide matching finish on exposed edges of countertops, splashes, and cutouts.
- D. Carefully inspect finished stone units at fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units.

## 2.6 STONE COUNTERTOPS

- A. General: Comply with recommendations in MIA's "Dimension Stone - Design Manual VI."
- B. Nominal Thickness: Provide thickness indicated, but not less than 1-1/4 inches (32 mm). Gage backs to provide units of identical thickness.
- C. Edge Detail: As indicated on architectural drawing.
- D. Splashes: Provide 3/4-inch- (20-mm-) thick backsplashes and end splashes unless otherwise indicated.
  - 1. Height: As indicated.
  - 2. Top-Edge Detail: Straight, slightly eased at corner.
- E. Joints: Fabricate countertops without joints.
- F. Cutouts and Holes:
  - 1. Undercounter Fixtures: Make cutouts for undercounter fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
    - a. Provide 3/4-inch (20-mm) full bullnose edges projecting 3/8 inch (10 mm) into fixture opening or as indicated on architectural drawings.
  - 2. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

**PART 3 EXECUTION****3.1 EXAMINATION**

- A. Examine substrates to receive stone countertops and conditions under which stone countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of stone countertops.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of stone countertops.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Advise installers of other work about specific requirements for placement of inserts and similar items to be used by stone countertop Installer for anchoring stone countertops. Furnish installers of other work with Drawings or templates showing locations of these items.
- B. Before installing stone countertops, clean dirty or stained stone surfaces by removing soil, stains, and foreign materials. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives. Allow stone to dry before installing.

**3.3 CONSTRUCTION TOLERANCES**

- A. Variation from Level: Do not exceed 1/16 inch in 96 inches (3 mm in 2400 mm), 1/8 inch (6 mm) maximum.

**3.4 INSTALLATION OF COUNTERTOPS**

- A. General: Install countertops over plywood subtops with full spread of water-cleanable epoxy adhesive.
- B. Do not cut stone in field unless otherwise indicated. If stone countertops or splashes require additional fabrication not specified to be performed at Project site, return to fabrication shop for adjustment.
- C. Set stone to comply with requirements indicated. Shim and adjust stone to locations indicated, with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances. Install anchors and other attachments indicated or necessary to secure stone countertops in place.
- D. Install backsplashes and end splashes by adhering to wall with water-cleanable epoxy adhesive. Leave 1/16-inch (1.5-mm) gap between countertop and splashes for filling with sealant. Use temporary shims to ensure uniform spacing.
- E. Apply sealant to joints; comply with Division 7 Section "Joint Sealants." Remove temporary shims before applying sealant.

**3.5 ADJUSTING AND CLEANING**

- A. In-Progress Cleaning: Clean countertops as work progresses. Remove adhesive, grout, mortar, and sealant smears immediately.
- B. Remove and replace stone countertops of the following description:
  - 1. Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if methods and results are approved by Architect.
  - 2. Defective countertops.
  - 3. Defective joints, including misaligned joints.
  - 4. Interior stone countertops and joints not matching approved Samples and mockups.
  - 5. Interior stone countertops not complying with other requirements indicated.
- C. Replace in a manner that results in stone countertops matching approved Samples and mockups, complying with other requirements, and showing no evidence of replacement.

- D. Clean stone countertops no fewer than six days after completion of sealant installation, using clean water and soft rags. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage stone.
- E. Sealer Application: Apply stone sealer to comply with stone producer's and sealer manufacturer's written instructions.

**END OF SECTION**